

Title (en)

Heparin-binding epidermal growth factor-like growth factor antigen binding proteins

Title (de)

Antigenbindende Proteine mit Affinität für den Heparin-Binding Epidermal Growth Factor-Like-Wachstumsfaktor

Title (fr)

Protéines de liaison avec l'antigène du facteur de croissance de type facteur de croissance épidermique se liant à l'héparine

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Abstract (en)

Provided herein are antigen binding proteins, e.g., human and/or monoclonal antibodies that have affinity for heparin-binding epidermal growth factor-like growth factor (HB-EGF) and neutralize the biological functions of this growth factor.

IPC 8 full level

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Citation (applicant)

- US 46600890 A 19900112
- US 61051590 A 19901108
- US 91929792 A 19920724
- US 92264992 A 19920730
- US 3180193 A 19930315
- US 11284893 A 19930827
- US 23414594 A 19940428
- US 37627995 A 19950120
- US 43093895 A 19950427
- US 46458495 A
- US 46458295 A 19950605
- US 46319195 A 19950605
- US 46283795 A
- US 48685395 A
- US 48685795 A 19950607
- US 48685995 A
- US 46251395 A 19950605
- US 72475296 A 19961002
- US 75962096 A 19961203
- US 2003093820 A1 20030515 - GREEN LARRY L [US], et al
- US 6162963 A 20001219 - KUCHERLAPATI RAJU [US], et al
- US 6150584 A 20001121 - KUCHERLAPATI RAJU [US], et al
- US 6114598 A 20000905 - KUCHERLAPATI RAJU [US], et al
- US 6075181 A 20000613 - KUCHERLAPATI RAJU [US], et al
- US 5939598 A 19990817 - KUCHERLAPATI RAJU [US], et al
- JP H0368180 B2 19911025
- JP H0368506 B2 19911028
- JP H0368507 B2 19911028
- EP 0463151 B1 19960612 - CELL GENESYS INC [US]
- WO 9402602 A1 19940203 - CELL GENESYS INC [US]
- WO 9634096 A1 19961031 - CELL GENESYS INC [US]
- WO 9824893 A2 19980611 - ABGENIX INC [US]
- WO 0076310 A1 20001221 - ABGENIX INC [US], et al
- US 5545807 A 19960813 - SURANI AZIM M [GB], et al
- US 5545806 A 19960813 - LONBERG NILS [US], et al
- US 5625825 A 19970429 - ROSTOKER MICHAEL D [US], et al
- US 5625126 A 19970429 - LONBERG NILS [US], et al
- US 5633425 A 19970527 - LONBERG NILS [US], et al
- US 5661016 A 19970826 - LONBERG NILS [US], et al
- US 5770429 A 19980623 - LONBERG NILS [US], et al
- US 5789650 A 19980804 - LONBERG NILS [US], et al
- US 5814318 A 19980929 - LONBERG NILS [US], et al
- US 5877397 A 19990302 - LONBERG NILS [US], et al
- US 5874299 A 19990223 - LONBERG NILS [US], et al

- US 6255458 B1 20010703 - LONBERG NILS [US], et al
- US 5591669 A 19970107 - KRIMPENFORT PAULUS J A [NL], et al
- US 6023010 A 20000208 - KRIMPENFORT PAULUS JACOBUS ANG [NL], et al
- US 5612205 A 19970318 - KAY ROBERT M [US], et al
- US 5721367 A 19980224 - KAY ROBERT M [US], et al
- US 5789215 A 19980804 - BERNS ANTON [NL], et al
- US 5643763 A 19970701 - DUNN BARBARA [US], et al
- US 57474890 A 19900829
- US 57596290 A 19900831
- US 81027991 A 19911217
- US 85340892 A 19920318
- US 90406892 A 19920623
- US 99086092 A 19921216
- US 5313193 A 19930426
- US 9676293 A 19930722
- US 15530193 A 19931118
- US 16173993 A 19931203
- US 16569993 A 19931210
- US 20974194 A 19940309
- EP 0546073 B1 19970910 - GENPHARM INT [US]
- WO 9203918 A1 19920319 - GENPHARM INT [US]
- WO 9222645 A1 19921223 - GENPHARM INT [US], et al
- WO 9222647 A1 19921223 - GENPHARM INT [US]
- WO 9222670 A1 19921223 - GENPHARM INT [US]
- WO 9312227 A1 19930624 - GENPHARM INT [US]
- WO 9400569 A1 19940106 - GENPHARM INT [US], et al
- WO 9425585 A1 19941110 - GENPHARM INT [US], et al
- WO 9614436 A1 19960517 - GENPHARM INT [US]
- WO 9713852 A1 19970417 - GENPHARM INT [US], et al
- WO 9824884 A1 19980611 - GENPHARM INT [US]
- US 5981175 A 19991109 - LORING JEANNE F [US], et al
- EP 0773288 A2 19970514 - KIRIN BREWERY [JP]
- EP 0843961 A1 19980527 - KIRIN BREWERY [JP]
- US 75962096 A 19961203
- US 4399216 A 19830816 - AXEL RICHARD [US], et al
- US 4912040 A 19900327 - KAUFMAN RANDAL J [US], et al
- US 4740461 A 19880426 - KAUFMAN RANDAL J [US]
- US 4959455 A 19900925 - CLARK STEVEN C [US], et al
- WO 0104144 A2 20010118 - FIEDLER ULRIKE [DE], et al
- US 3773919 A 19731120 - BOSWELL G, et al
- EP 0058481 A1 19820825 - ICI PLC [GB]
- EP 0133988 A2 19850313 - HOECHST AG [DE]
- DE 3218121 A1 19831117 - LESKOVAR PETER DR ING [DE]
- EP 0052322 A2 19820526 - GERSONDE KLAUS PROF DR [DE]
- EP 0036676 A1 19810930 - UNIV CALIFORNIA [US]
- EP 0088046 A2 19830907 - CIBA GEIGY AG [CH]
- EP 0143949 A1 19850612 - TERUMO CORP [JP]
- EP 0142641 A2 19850529 - EHRENFELD UDO
- JP S58118008 A 19830713 - NIPPON ELECTRIC CO
- US 4485045 A 19841127 - REGEN STEVEN L [US]
- US 4544545 A 19851001 - RYAN PATRICK J [US], et al
- EP 0102324 A2 19840307 - CIBA GEIGY AG [CH]
- WRIGHT ET AL., BR. J. CANCER, vol. 65, 1992, pages 118 - 121
- HELDIN, CELL, vol. 80, 1995, pages 213 - 223
- ULLRICH ET AL., CELL, vol. 61, 1990, pages 203 - 212
- DHILLON ET AL., ONCOGENE, vol. 26, 2007, pages 3279 - 3290
- PRENZEL ET AL., ENDOCR. RELAT. CANCER, vol. 8, 2001, pages 11 - 31
- HIGAHYAMA ET AL., J BIOL CHEM, vol. 267, 1992, pages 6205 - 6212
- ELENUS ET AL., EMBO, vol. 16, 1997, pages 1268 - 1278
- PRENZEL ET AL., NATURE, vol. 402, 1999, pages 884 - 888
- FISCHER ET AL., BIOCHEM. SOC. TRANS., vol. 31, 2003, pages 1203 - 1208
- ZUSHI ET AL., INT J CANCER, vol. 73, 1997, pages 917 - 923
- ABRAMOVITCH ET AL., FEBS LETTERS, vol. 425, 1998, pages 441 - 447
- TANAKA ET AL., CLIN. CANCER RES., vol. 11, 2005, pages 4783 - 4792
- MIYAMOTO, CANCER RES., vol. 64, 2004, pages 5720
- THOGENSEN ET AL., CANCER RES., vol. 61, 2001, pages 6227 - 6233
- ONGUSAHA, CANCER RES., vol. 64, 2004, pages 5283 - 5290
- SAMBROOK ET AL.: "Molecular Cloning: A Laboratory Manual", 2001, COLD SPRING HARBOR LABORATORY PRESS
- AUSUBEL ET AL.: "Current Protocols in Molecular Biology", 1992, GREENE PUBLISHING ASSOCIATES
- HARLOW; LANE: "Antibodies: A Laboratory Manual", 1990, COLD SPRING HARBOR LABORATORY PRESS
- DAVIS-FLEISCHER, FRONT BIOSCI., vol. 3, 1998, pages 288 - 299
- IWAMOTO; MEKADA, CYTOKINE GROWTH FACTOR REV., vol. 11, 2000, pages 335 - 344
- SHAH BH; CATT KJ., TRENDS PHARMACOL SCI., vol. 24, no. 5, May 2003 (2003-05-01), pages 239 - 244
- EGUCHI ET AL., BIOCHEM SOC TRANS., vol. 31, December 2003 (2003-12-01), pages 1198 - 1202
- "Fundamental Immunology", 1989, RAVEN PRESS
- CHOTHIA; LESK, J. MOL. BIOL., vol. 196, 1987, pages 901 - 917
- CHOTHIA ET AL., NATURE, vol. 342, 1989, pages 878 - 883
- KABAT ET AL.: "Sequences of Proteins of Immunological Interest", 1991, NIH PUBLICATION NO. 91-3242
- KABAT: "Sequences of Proteins of Immunological Interest", 1991, PUBLIC HEALTH SERVICE N.I.H.
- CHOTHIA ET AL., NATURE, vol. 342, 1989, pages 877 - 883
- THOMPSON ET AL., NUCLEIC ACIDS RES., vol. 22, 1994, pages 4673 - 4680
- SAITOU; NEI, MOLECULAR BIOLOGY AND EVOLUTION, vol. 4, 1987, pages 406 - 425
- MENDEZ ET AL., NATURE GENETICS, vol. 15, 1997, pages 146 - 156

- GREEN; JAKOBOVITS, J. EXP. MED., vol. 188, 1998, pages 483 - 495
- ISHIDA ET AL., CLONING STEM CELLS, vol. 4, 2002, pages 91 - 102
- BABCOCK, PROC. NATL. ACAD. SCI. USA, vol. 93, 1996, pages 7843 - 48
- CLACKSON ET AL., NATURE, vol. 352, 1991, pages 624 - 628
- MARKS, J. MOL. BIOL., vol. 222, 1991, pages 581 - 597
- FELDHAUS; SIEGEL, J. IMMUNOL. METHODS, vol. 290, 2004, pages 69 - 80
- GROVES; OSBOURN, EXPERT OPIN BIOL THER., vol. 5, 2005, pages 125 - 135
- JOSTOCK; DUBEL, COMB CHEM HIGH THROUGHPUT SCREEN., vol. 8, 2005, pages 127 - 133
- "Kabat Sequences of Proteins of Immunological Interest", 1987, NATIONAL INSTITUTES OF HEALTH
- CHOTHIA; LESK, J. MOL. BIOL., vol. 196, 1987, pages 901 - 917
- "Immunology - A Synthesis", 1991, SINAUER ASSOCIATES
- BOWIE ET AL., SCIENCE, vol. 253, 1991, pages 164
- "Proteins, Structures and Molecular Principles", 1984, W. H. FREEMAN AND COMPANY
- "Introduction to Protein Structure", 1991, GARLAND PUBLISHING
- THORNTON ET AL., NATURE, vol. 354, 1991, pages 105
- JONES ET AL., NATURE, vol. 321, 1986, pages 522 - 525
- RIECHMANN ET AL., NATURE, vol. 332, 1988, pages 323 - 329
- PRESTA, CURR. OP. STRUCT. BIOL., vol. 2, 1992, pages 593 - 596
- MORRISON ET AL., PROC. NATL. ACAD. SCI. U.S.A., vol. 81, 1984, pages 6851 - 6855
- HOLLINGER ET AL., PROC. NATL. ACAD. SCI. U.S.A., vol. 90, 1993, pages 6444 - 6448
- "The Pharmacology of Monoclonal Antibodies 113", 1994, SPRINGER VERTAG, pages: 269 - 315
- MUYLDERMANS ET AL., REVIEWS IN MOLECULAR BIOTECHNOLOGY, vol. 74, 2001, pages 277 - 302
- HOLT ET AL., TRENDS BIOTECHNOL., vol. 21, 2003, pages 484 - 90
- HEY ET AL., TRENDS IN BIOTECHNOL., vol. 23, 2005, pages 514 - 22
- HEY ET AL., TRENDS IN BIOTECHNOL., vol. 23, no. 10, 2005, pages 514 - 522
- HOLT ET AL., TRENDS IN BIOTECHNOL., vol. 21, 2003, pages 484 - 489
- DENNIS ET AL., J. BIOL. CELL, vol. 270, 1995, pages 25411 - 25417
- ALI ET AL., J. BIOL. CELL, vol. 274, 1999, pages 24066 - 24074
- CHRISTMANN ET AL., PROTEIN ENG., vol. 12, 1999, pages 797 - 806
- HUFTON ET AL., FEBS LETT., vol. 475, 2000, pages 225 - 231
- KOIDE ET AL., J. MOL. BIOL., vol. 284, 1998, pages 1141 - 1151
- SKERRA, J. BIOTECHNOL., vol. 74, 2001, pages 257 - 275
- BINZ, J. MOL. BIOL., vol. 332, 2003, pages 489 - 503
- NORD ET AL., PROTEIN ENG., vol. 8, 1995, pages 601 - 608
- HEY ET AL., TRENDS IN BIOTECHNOL., no. 2-3, 2005, pages 514 - 522
- BINZ ET AL., NATURE BIOTECHNOL., vol. 23, 2005, pages 1257 - 1268
- HOLLIGER ET AL., NATURE BIOTECHNOL., vol. 23, 2005, pages 11261136
- SKERRA, J. MOL. RECOG., vol. 13, no. 4, July 2000 (2000-07-01), pages 167 - 87
- BINZ; PLÜCKTHUN, J. MOL. RECOG., vol. 16, no. 4, August 2005 (2005-08-01), pages 459 - 69
- "Current Protocols in Molecular Biology", 1989, JOHN WILEY & SONS, pages: 6.3.1 - 6.3.6
- SAMBROOK; FRITSCH; MANIATIS: "Molecular Cloning: A Laboratory Manual", 2001, COLD SPRING HARBOR LABORATORY PRESS
- "Current Protocols in Molecular Biology", 1995, JOHN WILEY & SONS, INC.
- VOSS, TRENDS BIOCHEM. SCI., vol. 11, 1986, pages 287
- MANIATIS ET AL., SCIENCE, vol. 236, 1987, pages 1237
- WILSON ET AL.: "Harrison's Principles of Internal Medicine", 1991, MCGRAW-HILL, INC.
- "The Merck Manual of Diagnosis and Therapy", 1987, pages: 1206 - 1228
- "Remington: The Science and Practice of Pharmacy", 2003, LIPPINCOTT WILLIAMS & WILKENS PUBLISHERS
- LANGER ET AL., J. BIOMED MATER. RES., vol. 19, 1981, pages 167 - 277
- LANGER, CHEM. TECH., vol. 12, 1982, pages 98 - 105
- SIDMAN ET AL., BIOPOLYMERS, vol. 22, 1983, pages 547 - 556
- EPSTEIN ET AL., PROC. NATL. ACAD. SCI. USA, vol. 82, 1985, pages 3688 - 3692
- HWANG ET AL., PROC. NATL. ACAD. SCI. USA, vol. 77, 1980, pages 4030 - 4034
- BALDRICK P.: "Pharmaceutical excipient development: the need for preclinical guidance", REGUL. TOXICOL. PHARMACOL., vol. 32, 2000, pages 210 - 218
- WANG: "Lyophilization and development of solid protein pharmaceuticals", INT. J. PHARM., vol. 203, 2000, pages 1 - 60, XP002428586, DOI: doi:10.1016/S0378-5173(00)00423-3
- CHARMAN WN: "Lipids, lipophilic drugs, and oral drug delivery-some emerging concepts", J. PHARM. SCI., vol. 89, pages 967 - 978, XP008099512
- POWELL ET AL.: "Compendium of excipients for parenteral formulations", PDA J. PHARM. SCI. TECHNOL., vol. 52, 1998, pages 238 - 311, XP009119027
- KEARNEY ET AL., J. IMMUNOL., vol. 123, 1979, pages 1548 - 1550
- CHOTHIA ET AL., J. MOL. BIOL., vol. 196, no. 4, 1987, pages 901 - 17
- CHOTHIA ET AL., NATURE, vol. 342, 1989, pages 877 - 83
- MARTIN ET AL., J. MOL. BIOL., vol. 263, 1996, pages 800 - 15
- LOUKIANOV ET AL., GENE, vol. 195, pages 81 - 86
- JIA ET AL., J. IMMUNOL. METHODS, vol. 288, 2004, pages 91 - 98

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CY 131100850 T 20131002; DK 08802677 T 20080926; EP 08802677 A 20080926; EP 12170847 A 20080926; ES 08802677 T 20080926;
HK 11103166 A 20110329; HR P20130903 T 20130923; IL 20475710 A 20100325; JP 2010526221 A 20080926; KR 20107009159 A 20080926;
MX 2010003380 A 20080926; MY PI20101370 A 20080926; NZ 58472608 A 20080926; PL 08802677 T 20080926; PT 08802677 T 20080926;
RU 2010116256 A 20080926; RU 2013136172 A 20130801; SG 2013003140 A 20080926; SI 200831062 T 20080926; TW 97137321 A 20080926;
US 201414444912 A 20140728; US 68019108 A 20080926